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Ohio Mycological Bulletin No. 3

W. A. Kellerman, Ph.D., Ohio State University,

Columbus, Ohio, April 18, 1903.

EDITOR'S NOTE. — Grateful acknowledgement is again made for the hearty co-operation in extending the membership of the the OHIO MYCOLOGICAL CLUB; for the interest manifested in the BULLETIN; the correspondence already elicited in connection with fungi, interesting, edible or otherwise; and the specimens sent for illustration of observations made, or for inspection. Some of the correspondence and interesting notes will appear from time to time in the Bulletin. This is a phase of the work not particularly mentioned hertofore, yet it is hoped that it will prove very interesting and profitable.

I desire to say that receipt of Bulletins, subsequent to No. 1, indicates that you or some friend has paid the fee of 10 cents. The Bulletins will be mailed to *no one unless this amount has been paid*. From time to time the additions to the membership roll will be printed. Very frequently it will be several days, may be five to ten, before Bulletins can conveniently be sent after the request has been received. It is hoped that the number of mistakes on our part will be reduced to a minimum; please remind us at once if delinquency occurs.



SOME STUDY NECESSARY. — One can not positively know the kinds of mushrooms without some close scrutiny or careful study. There are so many kinds, and often they differ so little from each other, that thorough acquaintance is indispensable to a correct judgment in regard to them. No friend or instructor can enumerate the points for you, so that off-hand you may then certainly know the mushrooms and safely separate the good from the bad. But by carefully noting all the characters of any species that you may find—color, texture, size, shape, and other points of its structure, where it grows, any peculiarities in its mode of development; then studying another kind in the same manner; you will during the season learn really to know quite a number of species. If this plan is continued from year to year you ought to become acquainted with all the conspicuous kinds that occur in your neighborhood, and know them better than many botanists do. If an attempt is made to record observations and make sketches (perhaps using water colors), much more pleasure and profit will be realized. Some hints or directions will be given in the next Bulletin.



PARTS OF A MUSHROOM. — With specimens before you proceed with a methodical inspection, using the accompanying illustration (Fig. 12), to learn the names of the parts.

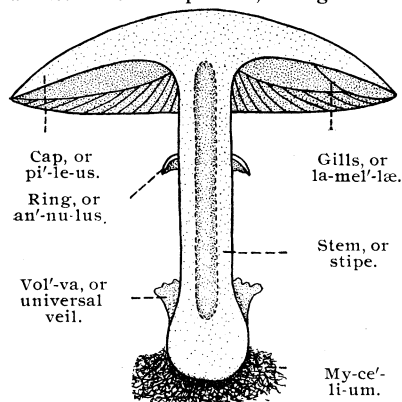


Fig. 12. Diagram showing parts of a Toadstool.

Cap, or pi'-le-us — This is the upper portion, more or less expanded, usually regular in shape, but sometimes various; its purpose is to bear the *spores*, or microscopic bodies for reproducing the species, comparable therefore in function to seeds of our common plants.

Gills, or la-mel'-lae. — These are the thin plates on the under side of the cap, differing in shape, mode of attachment, color and consistency in different species. In the Pore Fungi and in the Spine Fungi they are replaced by pores and soft spines respectively. On the surface of the gills, the tubes, and the spines the spores are produced.

Stem or Stipe.— This varies in length, shape, diameter, color, etc., in the different species; it may be solid and firm, or the interior may be soft, or almost hollow being occupied by a very loose tissue (when it is said to be "stuffed"). The stem may be attached to the middle of the cap, or near one side; in some species it is entirely absent.

Ring or an'-nu-lus.— When the mushroom is in an early stage of development the gills are close to the stem, and a membrane or veil is continuous over the cap, uniting it with the stem. The remains of this "*partial veil*," as it is called may be seen in some of the species in the form of a collar around the stem, and it is called the *ring or an'-nu-lus*.

Vol'-va.— In some species, especially the Volvarias and the Amanitas (which include poisonous species), there is a "universal veil," as it is called, or *vol'-va*, that encloses the young stem and cap; but these push up breaking through the top as they develop. The volva may then be found as a cup-like portion at the base when the mushroom is carefully dug up, but it is not always conspicuous.

My-ce'-li-um (pron. mi-se'-li-um).— The mass of whitish threads that attach the Mushroom to the soil or rotten wood, etc., is called the my-ce'-li-um. It is the vegetative part of the plant, i. e., these threads take up the nourishment from the decaying organic matter on which this group of plants (the fun-gi) feed.

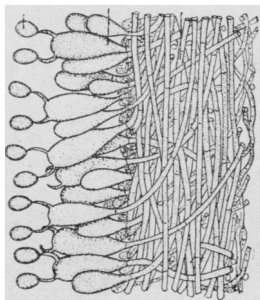


Fig. 14.

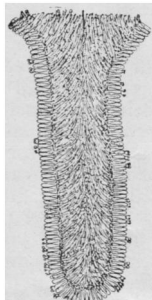


Fig. 13.

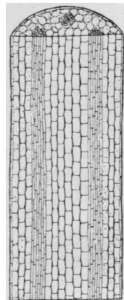


Fig. 15.

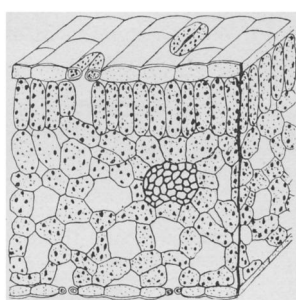


Fig. 16.

Fig. 13. Gill slightly magnified.
Fig. 14. Portion of gill highly magnified.

Fig. 15. Section of a stem showing cellular structure.
Fig. 16. Section of a leaf showing cellular structure.

STRUCTURE OF A MUSHROOM.— For pupils in schools or others who have a large microscope at hand, and to satisfy older people who want to know, let me say that with the aid of figures 13 and 14 some idea of the minute structure of Mushrooms may be obtained. The whole mass is made up of tiny tubes, elongated *cells* the botanist calls them. In these is the clear, slightly granular, semi-fluid *living substance* which is known by the name of *pro'-to-plasm*. The fact that this is the substance in which the life processes are manifest makes its structure and behavior of the most thrilling interest to the real student.

All *plants* have essentially this same minute structure — but usually the *cells* are very slightly elongated or even globular though many sided from mutual pressure. To make this matter clearer two figures are here introduced to show cells from a stem (Fig. 15) and from a leaf (Fig. 16). Within the cell wall (which is made up of a substance that the chemists call cel'-lu-lose) may be seen living, working, growing substance, namely the pro'-to-plasm. Some vegetable cells (and all cells in the animal tissues.), have no cellulose walls.

If you would know how *spores are borne*, and desire to know the language that botanists use in describing these structures, consult figure 13 which shows a section though a gill moderately magnified, and figure 14 which shows a small portion of the surface layer of the gill highly magnified, showing the spores.

The *spores are thrown* down when ripe — so it is possible to obtain a "*spore print*;" it is desirable to have a quantity of the spores in order also to determine their *color*. Hence observe the next paragraph.

Spore-Print.— To determine the color of the spores in any of the Gill-Fungi, select a specimen that is not too old; it is best if it has just

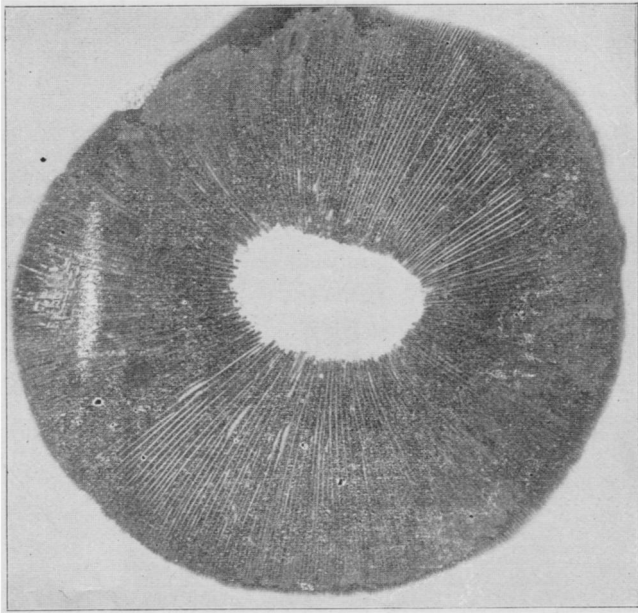


Fig. 17. Spore Print. From Atkinson's Mushrooms Edible and Poisonous.

expanded so as to expose the gills. Remove the stem close to the cap, or umbrella-like top, that bears the gills, and place it gill-side down on a sheet of paper, leaving it several hours or over night. Radiating lines of spores will be thrown down on the paper—having the appearance shown in the adjoining figure (17). It is best to catch spores on both white paper and black or dark-colored paper: spores if they happen to be white can scarcely be seen on white paper.



Fig. 18. Delicious Morel. *Mor-chel'-la de-li-ci-o'-sa*. Edible. From the Nina Marshall Mushroom Book, by kindness of publishers, Doubleday, Page & Co.

Morels.—Thanks are extended to members who have kindly sent specimens of *Morels*; they were, all the common kind that may be called *Morchel'-la es-cu-len'-ta*. It is hoped that some one will find specimens of *M. semi-i-lib'-er-a* and *M. bi'-spo-ra*. An additional figure is presented, and credit given under the same.



FROM CORRESPONDENTS.—Mr. E. V. Louth reports for *Ashtabula*: "*Morchella conica* as a variety, usually in solid soil; *M. esculenta* in more open places in loose soil; *M. semilibera*, found quite often has when cooked a somewhat astringent taste and not juicy; *M. bispora* found twice, also a freak, with button top, smooth and mellow." "Mr. Wm. H. Spencer says fishermen bring to the market in Sandusky, *Morels* which they collect on Cedar Point, edge of vegetation in sand close to the Lake Erie Beach;" this is an unusual and interesting locality for this species.



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